

REMARKS

Office Action Summary

Claim 23 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 1-6 and 12-23 is rejected under 35 U.S.C. 103(a) as being unpatentable over applicants' admitted prior arts (APA) by Koza et al. (US 5,867,397, hereinafter "Koza") and in view of another APA (Ullman, J.R) as set forth in the previous office action.

Status of Claims:

Claims 1-6 and 13-23 are pending.

Claims 1, 22, and 23 have been amended. No new matter has been added.

Rejection under 35 USC §101 – claim 23

Claim 23 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The specification has been amended to further define a "computer-readable storage medium". As such, claim 23 is directed to a statutory subject matter.

Applicant respectfully requests that the present rejection to claim 23 be withdrawn.

Rejection under 35 USC §103(a) – claims 1-6 and 12-23

Claims 1-6, 12-23 stand rejected under 35 USC §103(a) as being allegedly unpatentable over applicants' admitted prior arts (APA) by Koza et al. (US 5,867,397) in view of another APA (Ullman, J.R) as set forth in the previous office action.

Claims 1-23 are rejected under 35 U.S.C. §103(a), as being unpatentable over applicant's admitted prior arts (APA) by Koza et al, (US 5,867,397, herein after Koza '397 patent) and in view of another APA (Ullman, J. R.).

In view of the foregoing amendments, it is respectfully submitted that the present invention as claimed includes limitations that are not disclosed by both references.

Independent claim 1 includes performing iterative operations using genetic programming techniques to create and fine tune a structure that satisfies a predetermined design requirement and at the same time avoids key characteristics of an existing reference structure. The iteration operations are performed by looping through multiple runs. During each run, several new entities are created based on a variation of a selected entity of a previous run (e.g., previous loop), until a new entity satisfies the predetermined design requirement or a number of loops reaches a predetermined threshold. The evaluation of each entity in each loop is based on an isomorphism value associated with each entity to represent dissimilarity between the respective entity and the reference entity. It is respectfully submitted that these limitations are absent from both cited references.

Although the Office Action acknowledges that the Koza '397 patent fails to disclose creating a new entity that avoids certain features of a prior art; however, the Office Action contends that it is obvious to one with ordinary skill in the art (see e.g., 12/10/2007 Office Action, pages 10-11). The Office Action further asserts that "one of ordinary skill in the art whom is aware of 'novelty design' would immediately motivated to added another variable in the objective function or fitness measure to obtain a predictable results of 'creating novel design'" (04/20/2009 Office Action, page 5).

Applicant respectfully disagrees. Although the Koza '397 patent discloses certain techniques for designing structures using genetic programming; however, the Koza '397 patent fails to disclose or suggest the limitations set forth above, particularly, using genetic programming techniques to fine tune a structure to both satisfy a predetermined design requirement and avoid key characteristics of a preexisting structure. Koza '397 describes genetic programming techniques that create design that can encompass characteristics of a reference structure. On the other hand, the claims of present application recite in part iterative genetic programming operations where the end result structure does not possess key characteristics of a reference structure. Thus, the key characteristics of the reference structure are actively avoided in the present application while in Koza '397, the key characteristics of the reference structure are not actively avoided. (See also, Specification, page 13, lines 14-20).

There is no disclosure or suggestion within the Koza '397 patent regarding the limitations as claimed in the present application. Thus, one with ordinary skill in the art, based on the teachings of the Koza '397 patent, would not be able to conceive the limitations as claimed in the present application.

Even if the Koza '397 patent were combined with the Ullman reference, such a combination still lacks the limitations set forth above, particularly, using genetic programming techniques to create and fine tune a structure that satisfies a predetermined design requirement and at the same time avoids key characteristics of an existing reference structure. Again, any suggestion for combining the Koza '397 patent and the Ullman reference can only be found based on the impermissible hindsight of Applicant's own disclosure. Therefore, for reasons set forth above, it is respectfully submitted that the present invention as claimed is patentable over the Koza '397 patent and the Ullman reference.

Conclusion

For all of the above reasons, applicants submit that the amended claims are now in proper form, and that the amended claims all define patentable subject matter over the cited reference. Therefore, Applicants submit that this application is now in condition for allowance.

Extension of Time

Pursuant to 37 C.F.R. 1.136(a)(3), applicant(s) hereby request and authorize the U.S. Patent and Trademark Office to (1) treat any concurrent or future reply that requires a petition for extension of time as incorporating a petition for extension of time for the appropriate length of time and (2) charge all required fees, including extension of time fees and fees under 37 C.F.R. 1.16 and 1.17, to Deposit Account No. 02-2666.

Respectfully submitted,

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